BTEC Assignment Brief

Qualification	Pearson International BTEC Level 3 Foundation Diploma in Engineering Pearson BTEC International Level 3 Diploma in Engineering Pearson BTEC International Level 3 Diploma in Mechanical Engineering Pearson BTEC International Level 3 Diploma in Manufacturing Engineering Pearson BTEC International Level 3 Diploma in Aeronautical Engineering Pearson BTEC International Level 3 Extended Diploma in Engineering Pearson BTEC International Level 3 Extended Diploma in Mechanical Engineering Pearson BTEC International Level 3 Extended Diploma in Manufacturing Engineering Pearson BTEC International Level 3 Extended Diploma in Aeronautical Engineering
Unit number and title	**Unit 13: Welding Technology**
Learning aim(s)	**A:** Examine common welding processes used to produce welded joints safely for different applications
Assignment title	Selecting Welding Processes
Assessor	
Issue date	
Hand in deadline	
Vocational Scenario or Context	You are a final year apprentice within an engineering organisation which specialises in fabrication activities. Your supervisor has been observing your progress and is impressed by your knowledge and understanding of the theory which underpins the welding techniques that you use in the fabrication shop. He has asked you to produce a written report that provides justified selections of welding processes for specific processes that are carried out by the company.
Task 1	You are going to identify and justify the most suitable welding processes for specific applications, including welding parameters. You also need to explain how the processes would be carried out safely. **To do this:** Your tutor will provide you with either physical examples or case studies for two fabricated products and components. You will also be provided with information about the performance requirements of the product/component. You need to: • Research appropriate welding processes that could be used in the fabrication of the two products/components. For each, you should consider equipment requirements, typical applications, joint preparations, welding parameters, potential problems to overcome and potential hazards, and methods of safe handling and working.

	You also need to: • research welding terminology, including that used for equipment and processes • research the characteristics and operating principles of shielding gases that are used for a range of gas shielded welding activities • investigate welding power source components including both DC and AC current equipment. **You then need to:** Produce a report that explores the two most suitable welding processes for the given applications that a) justifies the most suitable process for the given application; b) justifies the correct welding parameters and settings; and c) explains the equipment, terminology and safe working practices that apply to each process. Your report should include: • Information about the two selected welding processes. This should consider a range of factors as part of the justification for selection. This could include: the different types of materials the process is suitable for; shielding gases that may need to be used; common applications for the specific welding process. • Information about the shielding gas or flux to be used for each of the process. For each you should give reasons for the selection. • Your identified welding parameters and settings. This should include information about the power supply, and the operational characteristics of your chosen power supply. You should give reasons for your selections. • Information about the equipment that you will use, including the correct use of welding terminology. You should explain how safe working practices are achieved for both processes, and consider differences between the processes chosen, including how safe working practices differ. **General note for assessors** Where possible the assessor should give different learners different case studies/products to work with.
Checklist of evidence required	A report examining the suitability of welding processes for at least two different applications. The report will also cover the safe working practices and equipment required.

Criteria covered by this task:	
Unit/Criteria reference	To achieve the criteria you must show that you are able to:
13/A.D1	Justify, using language that is technically correct, the choice of welding processes, parameters and settings for two given welding applications, explaining the equipment, terminology and safe working practices that apply.
13/A.M1	Analyse the choice of welding processes, parameters and settings for two given welding applications, explaining the equipment, terminology and safe working practices that apply.
13/A.P1	Explain the choice of welding processes, parameters and settings for two given welding applications, explaining the equipment, terminology and safe working practices that apply.
Sources of information to support you with this Assignment	**Books** Davies A; Science and Practice of Welding, Volume 1;Cambridge University Press, 1993; ISBN 9780521435659 Davies A; Science and Practice of Welding, Volume 2; Cambridge university Press, 1993; ISBN 9780521435659 Smith B; Welding Practice; Routledge, 2014; ISBN 9781317761365 Timings R; Fabrication and Welding Engineering; Newnes, 2008; ISBN 9780750666916 **Websites** me-mechanicalengineering.com/guidelines-for-welding-process-selection/ mechengg.net/2015/03/selection-of-welding-processes-and.html
Other assessment materials attached to this Assignment Brief	*Case study including drawings and information about fabricated products.*